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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,103	10/04/2003	David J. Danitz	06-473-2	2233
34704 7590 03/16/2010 BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510				
EXAMINER NGUYEN, TUAN VAN				
ART UNIT		PAPER NUMBER		
3731				
MAIL DATE		DELIVERY MODE		
03/16/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/679,103

Applicant(s)

DAVID J. DANITZ

Examiner

TUAN V. NGUYEN

Art Unit

3731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 50-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 50-62 and 64-68 is/are rejected.
- 7) ☒ Claim(s) 63 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 50-68 are pending in this application. Claims 50-62 and 64-68 were rejected and claim 63 was objected in the Office Action mailed out on 22 September 2009.
2. This Office action is in response to the amendment filed on 12/30/2009.

Response to Amendment

3. Claims 50-60 have been amended to overcome the rejection under 35 USC § 112, first and second paragraphs, therefore, the rejection is hereby withdrawn.

Response to Applicant's Arguments

4. Applicant's arguments in the Remarks filed on 30 December, 2009 have been fully considered but they are not persuasive for the reasons set forth in detail below.
 - a. Applicant argues that "The Examiner must examine the claim language as it reflects the Specification and the ordinary and customary meaning of the term within the art. The Examiner cannot arbitrarily label a ball and socket joint as 'beads.'" As argued throughout the prosecution history of this application, a bead is not a sleeve or a socket. It is well known within all geometrical sciences that a bead is round in shape. A socket or sleeve is anything but round and is therefore not a bead. A person of ordinary skill in the art would not equate Peng's ball and sleeve with the plurality

alternating beads as currently claimed". According to <http://dictionary.reference.com/> dictionary, a bead is a small, usually round object of glass, wood, stone, or the like with a hole through it. Examiner contends that a bead can have a ball-shaped body (350) or cylindrical-shaped body (340) as disclosed by Peng. Extrinsic evidence, Tillemann (US 2,677,901) discloses bead that has cylindrical-shaped body (Fig. 1, reference number 18, 21, 23, 25, 27; col. 1, lines 47-50; and col. 3, lines 55-60).

- b. Applicant argues that "the current application clearly claims that the "second bead is supported on the surface of two adjacent first beads at a line of contact, and the surface of each of the second beads has a convex shape at the line of contact." The bead structure of the present application is a unique inventive structure employed to prevent the shaft from becoming rigid when a high axial load is applied to the cable. The smooth surface of the convex torus does not bite into the other bead. If the second bead was a cylinder, such as a socket, the convex torus would create a sharp point on the inside of the cylinder, such as the point created from Peng's 342 and 343. This sharp point would bite into the subsequent bead under an axial load and cause the flexible shaft to become rigid". Examiner respectfully traverses applicant's remarks. Noting that Peng discloses (col. 25, lines 45-57) each ball joint is made from a hard plastic having a first hardness and each sleeve is made from a hard plastic

having a second hardness (different from the first hardness) so that the harder material wedges into the softer material. For example, the ball joints can be molded from polycarbonate plastic and the sleeves from Ultem plastic (or the sleeves can be molded from polycarbonate plastic and the ball joints from Ultem plastic). The passage above indicates that the ball joints can be made from a material that is harder than the sleeve. In this event, the shoulder surfaces on the sleeve 340 will not bite into the hard convex surface of the ball joints, however, the ball joints and sleeve still provide a rigid shaft when the cable is under tension. Larson teaches the outer surface of the beads 11 of an articulate column should be curved and convex to improve the rolling motion in relation to each other (see col. 2, lines 35-36 and lines 43-45). Apparently, the advantages are providing a greater range of mobility along the length of the shaft, more flexibility to the shaft in order to reach the location that is difficult to get to, and still maintaining high torsional resistant. It would have been obvious to one of ordinary skill in the art to provide a convex surface to the shoulder 342 of beads 340 as disclosed by Peng et al. so that it too would have the same advantage.

- c. Applicant argues that "By definition and simple comparison, one can easily see that the ball and socket configuration of Cosgrove's FIGS. 7d and 7e are not the same as the plurality of alternating first beads and second beads" diagramed in FIGS. 3A and 3B of the present application and

recited in lines 9-10 of claim 61". According to <http://dictionary.reference.com/> dictionary, a bead is a small, usually round object of glass, wood, stone, or the like with a hole through it. Examiner contends that a bead can have a ball-shaped body (350) and cylindrical-shaped body (340) as disclosed by Peng or the bead can have a shape as bead 38 as shown in Fig. 7e of Cosgroves's drawings. Extrinsic evidence, Tilleman (US 2,677,901) discloses bead that has cylindrical-shaped body (Fig. 1, reference number 18, 21, 23, 25, 27; col. 1, lines 47-50; and col. 3, lines 55-60).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. **Claims 50-60 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng et al. (U.S. 6,730,020) in view of Larson et al. (US 4,393,728).**
8. Referring to **claims 50, 51, 54-56, 59, 60 and 68**, Peng et al show (see Figs. 1 and 35-38) an articulate column 4B (Fig. 1), that is capable for use as a shaft with a surgical clamp device, comprises a cable or central member and alternating first beads 350 and second beads 340. The second beads 340 have a larger inner diameter than the first beads 350 and each of the second beads is supported on the outer surface of the first beads 350 wherein the second beads 340 contact adjacent first beads 350 along the shoulder 342 (Fig. 36) to form a line of contact between first bead 350 and second bead 340 (see col. 25, lines 15-45). Peng et al does not specifically disclose the shoulder 342 of the second beads 340 is a convex surface. However, Larson et al disclose the outer surface of the beads 11 of an articulate column should be curved and convex to improve the rolling motion in relation to each other (see col. 2, lines 35-36 and lines 43-45). Apparently, the advantages are providing a greater range of mobility along the length of the shaft, more flexibility to the shaft in order to reach the location that is difficult to get to, and high torsional resistant as suggested by Peng/Larson. It would have been obvious to one of ordinary skill in the art to provide a convex surface to the

- shoulder 342 of beads 340 as disclosed by Peng et al. so that it too would have the same advantage.
9. As to the recitation that the shaft is for use with a clamp device, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.
10. Referring to **claims 52, 53, 57, and 58**, Peng as modified by Larson does not show the second beads has a smaller outer diameter than each of the first beads or has a larger outer diameter as each of the first beads. It would have been an obvious matter of design choice to one of ordinary skill in the art to design an outer diameter of the second beads smaller or larger than the first beads since such a design does not solve any stated problem.
11. **Claims 61, 62, and 64-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosgrove, III et al (U.S. 6,139,563) in view of Peng et al. (U.S. 6,730,020) and further in view of Larson et al. (US 4,393,728).**
12. Referring to **claims 61, 62, 64 and 67**, Cosgrove shows a clamp comprising a handle assembly 12, a gripping assembly 16, which includes a pair of jaws 48, and a shaft assembly 14. The shaft assembly has a flexible shaft, wherein the shaft having a proximal end coupled to the handle assembly and a distal end coupled to the gripping assembly. The flexible shaft defines a bore and comprises a plurality of beads 38. A cable 31 extends through the bore and has a proximal end coupled

to the handle assembly and a distal end coupled to the gripping assembly.

Cosgrove does not show the beads comprising alternating first and second beads wherein the second beads have a larger inner diameter than the first beads and each of the second beads is supported on the surface of the two adjacent beads at a line of contact and each of the second beads has a convex shape at the line of contact. As already established in the rejection of claims 50-60 and 68 above, Peng as modified by Larson provide an articulable column that is capable for use with a clamp device. Further, Peng discloses that the design as disclosed in Figs. 37-38 can be interchange with the conventional ball and socket (col. 25, lines 15-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the bead formation of Cosgrove with the modified bead formation taught by Peng/Larson, because this will provide a greater range of mobility along the length of the shaft, more flexibility to the shaft in order to reach the location that is difficult to get to, and high torsional resistant as suggested by Peng/Larson (col. 2, lines 35-36 and 43-45).

13. Referring to **claims 65 and 66**, the modified device of Cosgrove does not show the second beads has a smaller outer diameter than each of the first beads or has larger outer diameter as each of the first beads. However, Examiner contends that it would have been an obvious design choice to one of ordinary skill in the art to design an outer diameter of the second beads smaller or larger than the first beads since such a design does not solve any stated problem.

Allowable Subject Matter

14. Claim 63 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **TUAN V. NGUYEN** whose telephone number is (571)272-5962. The examiner can normally be reached on 9:00 AM - 5:00 PM.

Art Unit: 3731

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AnhTuan Nguyen can be reached on 571-272-4963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. V. N./
Examiner, Art Unit 3731

/Anh Tuan T. Nguyen/
Supervisory Patent Examiner, Art Unit 3731
3/15/10